

REMARKS

In response to the claim objection, claim 16 has been rewritten in independent form.

Further, claims 8, 16 and 17 have been amended to limit the inorganic filler to a carbon allotrope selected from the group consisting of diamond, fullerene and carbon nanotube.

Support is found at page 4, lines 6-23 of the specification.

Review and reconsideration on the merits are requested.

Claims 8, 9, 11, 16 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,461,107 to Amin et al in view of U.S. Publication No. US 2003/0228249 A1 to Fujimura et al.

Applicants respond as follows.

The sealing materials of claims 8, 16 and 17 comprise a fluorine-containing elastomer composition. The composition comprises a perfluoroelastomer and a carbon allotrope. The carbon allotrope is one species selected from the group consisting of diamond, fullerene and carbon nanotube.

Amin et al discloses an elastomeric composition comprising a mixture (blend) of a perfluoroelastomer and a non-fibrillating particulate fluorinated graphite (col. 3, lines 15-19). The non-fibrillating fluorocarbon particulate polymer may be (1) a low molecular weight polytetrafluoroethylene, (2) a copolymer of TFE and hexafluoropropylene or perfluoroalkyl vinyl ether, or (3) fluorinated graphite (col. 5, lines 23-37). Fluorinated graphite is a material having a composition of $(CF_x)_n$ (col. 5, lines 38-42).

Amin et al does not disclose diamond, fullerene or carbon nanotube.

Fujimura et al discloses that a polymer composition containing the ultra dispersed diamond is characterized by a decrease in the friction coefficient of a poly-fluoro elastic material

or perfluoro polymer and an increase in the friction coefficient of poly-isoprene (paragraph [0336]).

However, Fujimura et al does not disclose any fluorocarbon particulate polymer. For that matter, Fujimura et al also does not disclose any fluorinated material as an additive as well.

Therefore, it would have been difficult for one of ordinary skill in the art, at the time of the invention, to combine the invention of Amin et al with the teachings of Fujimura et al. Moreover, it is not at all obvious to substitute a non-fibrillating particulate fluorinated graphite with the ultra dispersed diamond per the teachings of Fujimura et al in the elastomer composition of Amin et al.

Regarding this last point, a person of ordinary skill in the art would mix a perfluoroelastomer with a non-fibrillating fluorocarbon particulate polymer as taught by Amin et al to provide a perfluoroelastomeric seal having certain desirable properties (col. 5, lines 21-38).

This is the solution that Amin et al provides. Thus, one of ordinary skill might have reason to vary the composition or size of the non-fibrillating fluorocarbon particulate polymer so as to perhaps further improve on the composition and process of Amin et al. However, Amin et al does not provide any incentive for one of ordinary skill to substitute the non-fibrillating fluorocarbon particulate polymer of Amin et al with the completely different inorganic UDD material of Fujimura et al, with any reasonable expectation of success.


For the above reasons, it is respectfully submitted that the sealing material of the amended claims is patentable over Amin et al in view of Fujimura et al, and withdrawal of the foregoing rejections is respectfully requested.

Withdrawal of all rejections and allowance of claims 8, 9, 11, 16 and 17 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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